



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Western Plant Breeders

Whereas, THERE HAS BEEN PRESENTED TO THE  
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF SEED AS DETERMINED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

DURUM WHEAT

'WestBred 881'

In Testimony Whereof, I have hereunto set  
my hand and caused the seal of the Plant  
Variety Protection Office to be affixed  
at the City of Washington  
this 15th day of July in  
the year of our Lord one thousand nine  
hundred and eighty-two.

Attest:

*Kenneth H. Evans*

Acting  
Commissioner  
Plant Variety Protection Office  
Grain Division  
Agricultural Marketing Service

*John R. Block*  
Secretary of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED  
OMB NO. 40-R3822

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY WDE-8-4-6E		1b. VARIETY NAME WestBred 881		FOR OFFICIAL USE ONLY PV NUMBER <b>8200052</b>	
2. KIND NAME Durum Wheat		3. GENUS AND SPECIES NAME Triticum durum		FILING DATE 1/11/82	TIME 1:00 <b>A.M.</b>
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION 9-1-80		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 1/11/82 5/3/82
6. NAME OF APPLICANT(S) Western Plant Breeders W.P.B. ACQUISITION, INC. WESTERN PLANT BREEDERS, INC. (a manulized corporation)		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P. O. Box 1110 1918 W. Van Buren Phoenix, AZ. 85001 ATT: MR. ROBERT HUATINGTON		8. TELEPHONE AREA CODE AND NUMBER (602) 257-1223	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Arizona Dec. 1, 1977		11. DATE OF INCORPORATION Dec. 1, 1977	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Kim C. Shantz Western Plant Breeders P. O. Box 1110, Phoenix, AZ. 85001					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)

☒ 13B. Exhibit B, Novelty Statement.

☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)

☐ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

Jan 6, 1982  
(DATE)

Kim C. Shantz  
(SIGNATURE OF APPLICANT)

13A.

WestBred 881 is an  $F_7$  plant selection from the 1976 composite cross bulk made up of four high-quality northern durum wheats (Ward, Wells, Cando, and Wascana) crossed with two high yielding southern durum wheats (Mexicali and 1000 D). The  $F_7$  plant selection was derived from the bulk progeny of an  $F_4$  plant plot designated WDE-8-4-6. The exact parentage is not known but is from one of a number of possible crosses already described.

Once the  $F_2$  heads were selected from the composite cross bulk  $F_2$ , a pedigree system of handling subsequent generations was used. One  $F_3$  plant was used to produce the  $F_4$  plant plot and 10 heads from the  $F_4$  were used to produce the  $F_5$ . Non-segregating  $F_5$  head rows were bulked together for yield testing. A single early plant selection was made out of the resulting  $F_7$  bulk in 1980. This plant selection was designated WDE-8-4-6E and later named WestBred 881.

WestBred 881 has a black awned variant that occurs at the frequency of 1 in 10,000 plants. A late heading variant occurs at a frequency of 1 in 20,000 plants. Currently, WestBred 881 is being head rowed in an attempt to eliminate these variants.

WestBred 881 is a stable and uniform variety in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support stability is presented in the tables.

13B.

WestBred 881 is a spring durum wheat, early in maturity, with short, strong, and white straw. It is most similar in phenotypic appearance to Mexicali 75. The beak length of Mexicali 75 is twice as long as the beak length of WestBred 881 (6 mm. vs 3 mm). WestBred 881 has a narrow and shallow seed crease while Mexicali 75 has a wide and shallow seed crease. The checks of WestBred 881 are rounded while those of Mexicali 75 are angular. WestBred 881 has square shoulders while those of WestBred 803 are oblique and those of Mexicali are elevated. WestBred 881 is a semi-dwarf and has white chaff, while all the North Dakota durum wheat varieties are either standard height or have red chaff.

WestBred 881 is particularly novel because of its exceptionally good pasta making qualities. It is the first semi-dwarf durum to have high gluten strength which is a large part of spaghetti firmness. The semolina dust color of WestBred 881 is much better than Mexicali 75 and somewhat better than Aldura. Percent protein of the whole grain of WestBred 881 averages 1.8% higher than Mexicali 75. Hard amber vitreous counts (HVAC) of WestBred 881 exceed those of all other varieties of durum grown in Arizona and California.

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY  
WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Western Plant Breeders, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

P. O. Box 1110

Phoenix, Arizona 85001-1110

FOR OFFICIAL USE ONLY

PVPO NUMBER

8200052

VARIETY NAME OR TEMPORARY  
DESIGNATION

West Bred 881

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g., 0 8 9 or 0 9 ) when number is either 99 or less or 9 or less.

## 1. KIND:

2 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

## 2. TYPE:

1 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 2 1 = SOFT 3 = OTHER (Specify)  
2 = HARD

3 1 = WHITE 2 = RED 3 = OTHER (Specify) Amber

## 3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

9 2 FIRST FLOWERING

1 0 4 LAST FLOWERING

## 4. MATURITY (50% Flowering):

1 4 NO. OF DAYS EARLIER THAN 6 1 = ARTHUR 2 = SCOUT 3 = CHRIS

NO. OF DAYS LATER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS

## 5. PLANT HEIGHT (From soil level to top of head):

8 5 CM. HIGH

CM. TALLER THAN

3 5 CM. SHORTER THAN 6 1 = ARTHUR 2 = SCOUT 3 = CHRIS  
4 = LEMHI 5 = NUGAINES 6 = LEEDS

## 6. PLANT COLOR AT BOOTING (See reverse):

2 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

## 7. ANTHUR COLOR:

2 1 = YELLOW 2 = PURPLE

## 8. STEM:

1 Anthocyanin: 1 = ABSENT 2 = PRESENT

2 Waxy bloom: 1 = ABSENT 2 = PRESENT

1 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

1 Internodes: 1 = HOLLOW 2 = SOLID

4 NO. OF NODES (Originating from node above ground)

1 9 CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

## 9. AURICLES:

2 Anthocyanin: 1 = ABSENT 2 = PRESENT

1 Hairiness: 1 = ABSENT 2 = PRESENT

## 10. LEAF:

1 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED  
3 = OTHER (Specify):

2 Flag leaf: 1 = NOT TWISTED 2 = TWISTED

1 Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

2 Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

1 5 MM. LEAF WIDTH (First leaf below flag leaf)

2 6 CM. LEAF LENGTH (First leaf below flag leaf):

## 11. HEAD:

Density: 1 = LAX 2 = DENSE
  Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE  
 4 = OTHER (Specify) \_\_\_\_\_

Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED  
 5 = BROWN 6 = BLACK 7 = OTHER (Specify): \_\_\_\_\_

CM. LENGTH
   MM. WIDTH

## 12. GLUMES AT MATURITY:

Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.)  
 3 = LONG (CA. 9 mm.)
  Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)  
 3 = WIDE (CA. 4 mm.)

Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED  
 4 = SQUARE 5 = ELEVATED 6 = APICULATE
  Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

## 13. COLEOPTILE COLOR:

1 = WHITE 2 = RED 3 = PURPLE

## 14. SEEDLING ANTHOCYANIN:

1 = ABSENT 2 = PRESENT

## 15. JUVENILE PLANT GROWTH HABIT:

1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

## 16. SEED:

Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL
  Cheek: 1 = ROUNDED 2 = ANGULAR

Brush: 1 = SHORT 2 = MEDIUM 3 = LONG
  Brush: 1 = NOT COLLARED 2 = COLLARED

Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN  
 4 = BROWN 5 = BLACK

Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) \_\_\_\_\_

MM. LENGTH
   MM. WIDTH
   GM. PER 1000 SEEDS

## 17. SEED CREASE:

Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'  
 2 = 80% OR LESS OF KERNEL 'CHRIS'  
 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'
  Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'  
 2 = 35% OR LESS OF KERNEL 'CHRIS'  
 3 = 50% OR LESS OF KERNEL 'LEMHI'

## 18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

STEM RUST (Races)
  LEAF RUST (Races)
  STRIPE RUST (Races)
  LOOSE SMUT

POWDERY MILDEW
  BUNT
  OTHER (Specify) \_\_\_\_\_

## 19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

SAWFLY
  APHID (Bydv.)
  GREEN BUG
  CEREAL LEAF BEETLE

OTHER (Specify) \_\_\_\_\_
 HESSIAN FLY RACES:
  GP
  A
  B
  C

D
  E
  F
  G

## 20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	WestBred 1000D	Seed size	Mexicali
Leaf size	WestBred 1000D	Seed shape	Mexicali
Leaf color	Mexicali	Coleoptile elongation	Mexicali
Leaf carriage	Mexicali	Seedling pigmentation	Mexicali

## INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

FORM LPGS 470-6 (3-79) (Reverse)

Table I.

8200052

Yield in lbs. per acre of WestBred 881 and  
presently grown varieties in Western Plant Breeders  
trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>WESTBRED 881</u>	<u>WESTBRED 1000 D</u>	<u>MEXICALI 75</u>	<u>ALDURA</u>	<u>PRODURA</u>
Phoenix, AZ.	1979	5200	6435	5655	-	-
	1980	6421	8331	6552	6908	6610
	1981	5153	5828	5546	5922	5452
El Centro, CA.	1979	6565	6695	5785	-	-
	1980	7458	7912	6453	6421	5840
	1981	4738	4400	3475	5213	4025
Corcoran, CA.	1980	5844	7586	6630	8096	7225
	1981	5275	6115	6275	6400	5875
Yuma, AZ.	1981	5425	6917	5850	5963	4963
Fresno, CA.	1981	3179	3520	3372	3795	3328

Table II.

8200052

Milling and pasta quality of WestBred 881 compared to Aldura, Calvin, Mexicali.

Variety:	<u>WestBred 881</u>	<u>Mexicali 75</u>	<u>Aldura</u>	<u>Calvin</u>
Location:	Phoenix, AZ.	Phoenix, AZ.	Phoenix, AZ.	Phoenix, AZ.
Test Weight:	62.8	63.6	64.7	64.1
1000 Kwt.:	56.8	60.6	50.5	42.2
Yield in lbs./acre:	6421	6552	6908	6531
Wheat Protein %:	13.8	12.1	12.2	12.4
Semo Protein %:	12.5	10.9	11.2	11.4
Semo. Ext.:	54.8	58.1	58.5	55.3
Total Ext.:	75.0	77.4	75.3	74.9
Semo. Min.:	.67	.67	.62	.68
Semo. Dust Color:	14.0	12.0	13.5	13.0
Spag. Color:	10.0	9.0	9.5	9.5
Mixo Score:	7	5	2	1
Spag. Firm Score:	8.19	6.74	5.70	5.83
Residue Percent:	4.3	5.0	5.3	6.1



Table III.

Hard amber vitreous counts (HVAC) of WestBred 881 and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>WESTBRED 881</u>	<u>WESTBRED 1000 D</u>	<u>MEXICALI 75</u>	<u>ALDURA</u>	<u>PRODURA</u>
Phoenix, AZ.	1980	97	55	92	96	96
	1981	93	65	67	88	93
El Centro, CA.	1979	97	48	75	-	-
	1980	97	81	91	96	99
	1981	99	90	95	99	99
Corcoran, CA.	1980	97	78	78	96	79
Fresno, CA.	1981	73	23	41	60	82
Davis, CA.	1981	46	2	6	14	20

Table IV.

Number of days to heading of WestBred 881 and  
presently grown varieties in Western Plant Breeders'  
trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>WESTBRED 881</u>	<u>WESTBRED 1000 D</u>	<u>MEXICALI 75</u>	<u>ALDURA</u>	<u>PRODURA</u>
El Centro, CA.	1980	124	144	122	129	130
Phoenix, AZ.	1981	142	153	140	146	142

Table V.

Percent protein of WestBred 881 and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>WESTBRED 881</u>	<u>WESTBRED 1000 D</u>	<u>MEXICALI 75</u>	<u>ALDURA</u>	<u>PRODURA</u>
Phoenix, AZ.	1979	16.2	15.7	14.2	-	-
	1981	13.2	12.1	11.1	11.9	12.9
El Centro, CA.	1980	13.9	12.8	12.5	12.3	13.6
	1981	14.7	14.0	13.4	14.1	14.2
Corcoran, CA.	1980	13.2	12.7	12.2	12.1	12.6
	1981	14.1	12.8	12.2	12.8	-

Table VI.

Plant height of WestBred 881 in inches and  
presently grown varieties in Western Plant  
Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>WESTBRED 881</u>	<u>WESTBRED 1000 D</u>	<u>MEXICALI 75</u>	<u>ALDURA</u>	<u>PRODURA</u>
Phoenix, AZ.	1979	37	34	36	-	-
	1981	37	37	40	34	35
El Centro, CA.	1980	38	36	35	31	32
Corcoran, CA.	1980	43	40	39	34	30
Fresno, CA.	1981	35	34	36	30	32

Table VII.

8200052

Percent lodging of WestBred 881 and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>WESTBRED 881</u>	<u>WESTBRED 1000 D</u>	<u>MEXICALI 75</u>	<u>ALDURA</u>	<u>PRODURA</u>
Phoenix, AZ.	1979	0	10	0	-	-
	1980	0	0	40	0	0
El Centro, CA.	1979	0	10	30	-	-
	1981	20	30	95	20	95
Corcoran, CA.	1980	0	0	90	0	30
	1981	100	70	100	60	90

Table IX.

t-test Comparison of  $\bar{x}$  beak lengths of WestBred 881 and Mexicali 75.

$\bar{x}$  WestBred 881 = 2.6 mm.

$\bar{x}$  Mexicali 75 = 5.85 mm.

t with 38 df =  $\frac{3.25 \text{ mm}}{.292} = 11.13^{***}$

\*\*\* Significant at .001 level